

REMARKS

Claims 1 through 3 and 5 through 16 are now pending in this application. In response to the Office Action dated April 13, 2004, claims 5 and 8 have been amended and claim 16 has been added. A Request for Continued Examination (RCE) with appropriate fee charge authorization is filed herewith. Care has been exercised to avoid the introduction of new matter. Favorable reconsideration of the application as now amended is respectfully solicited.

Claims 2, 3, 5 and 8 have been allowed. Claims 5 and 8 have been amended to delete the phrase "the first and second." This deletion has been made to correct an error in the earlier amendment of these claims to place them in independent format. The deleted phrase is believed to have presented unnecessary confusion with respect to appropriate antecedent bases. Claims 5 and 8 now correspond to their original recitation (with parent claim recitation), which was indicated to be allowable in the Office Action of April 22, 2003.

Claims 1, 6, 9, 12 and 13 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. patent 6,307,984 (Watanabe). Claims 7 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe. Independent claim 1 recites, *inter alia*, the following:

a first optical fiber having a *composition* in its optical region,

a second optical fiber having another *composition* in its optical region, and

. . . wherein said first and second optical fibers are connected in series and have different wavelength ranges for amplification . . .
(emphasis supplied).

Independent claims 12 and 13 recite:

a plurality of optical fibers which differ from each other with respect to the *composition* of their respective optical regions and through which signal lights are amplified by stimulated Raman scattering, wherein said plurality of optical fibers have different wavelength ranges for amplification . . . (emphasis supplied).

The Office Action discusses Watanabe at pages 2 through 5, specifically referring to columns 22 and 23. It is respectfully submitted that Watanabe does not disclose optical fibers differing from each other with respect to their composition in their core region. Watanabe teaches a transmission line comprised of a series of concatenated optical fiber sections having varying mode field diameters (Col. 23, lines 8-11). However, the mode field diameters in Watanabe may be changed by changing the concentration of a dopant. Watanabe only discloses GeO₂ as a dopant in core (Col. 24, lines 47-50). There is no disclosure in Watanabe that mode field diameters may be changed by changing the composition of the fibers. It is submitted that Watanabe does not suggest different dopants in the fibers and that each such dopant effects a different stokes shift. It is submitted, therefore, that claims 1, 6, 7, 9, 10, 12 and 13 are patentably distinguishable.

Independent claim 13 additionally recites:

a pump light source for supplying pump light for Raman amplification to each of said plurality of optical fibers, said plurality of optical fibers and said pump light source being located at a station.

This claimed requirement differs from Watanabe, whose optical fibers are located between stations, not at a station. Claim 13, therefore, recites a further distinguishing feature. Withdrawal of the rejection of claims 1, 6, 9, 12 and 13 is respectfully solicited.

Claim 11 has been rejected under 35 U.S.C. § 103 as being unpatentable over Watanabe in view of Akasaka, of record. Akasaka has been relied upon for teaching a Raman fiber amplifier comprising a control unit. However, claim 11 also requires similar recitation to the claim phrases quoted above, *i.e.*,:

a plurality of optical fibers which differ from each other with respect to the *composition* of their respective optical regions and through which signal lights are amplified by stimulated Raman

scattering, wherein said plurality of optical fibers have different wavelength ranges for amplification

Neither Watanabe nor Akasaka discloses or suggests different dopants in the fibers and that each such dopant effects a different stokes shift. It is submitted, therefore, that claim 11 is patentably distinguishable and that the rejection thereof should be withdrawn.

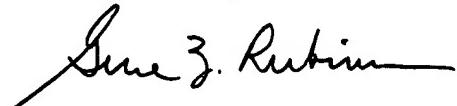
Claims 14 and 15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe in view of Mollenauer. Mollenauer has been relied upon for teaching inputting a first pump light into a first fiber section and inputting a second pump light into a second fiber section. Claims 14 and 15 are each dependent from claim 1 and thus require the recited subject matter of claim 1 quoted above. Mollenauer has been applied in the Office Action solely with respect to the additional features recited in the dependent claims. As neither Watanabe nor Mollenauer teach or suggest the requirements of claim 1, as discussed above, it is submitted that these claims are patentably distinguishable. Withdrawal of the rejection of claims 14 and 15 is respectfully solicited.

New claim 16 requires that the first and second fibers have different compositions in their optical regions and that both fibers and pump light sources are located at a station. It is submitted, therefore, that claim 16, is patentably distinguishable for the same reasons as advocated above with respect to claim 13.

Accordingly, allowance of the application is respectfully solicited. To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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